AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A substrate having a surface for adherence of cells thereto comprising:

at least one micronail structure protruding from the surface, said micronail structure comprising a base rod-like portion and a head cap-like portion of a larger surface, wherein at least a region of said micronail structure ~~within~~ on the head cap-like portion has cellular internalization-promoting moieties so that at least the head cap-like portion of the micronail structure has cellular-internalization promoting properties.

2. (Cancelled)

3. (Currently amended) The substrate according to Claim 1, wherein ~~wherein~~ the head cap-like portion has the cellular internalization promoting properties.

4. (Previously presented) The substrate according to Claim 3, wherein the head cap-like portion is coated with the cellular internalization-promoting moieties.

5. (Cancelled)

6. (Previously presented) The substrate of Claim 3, wherein the head cap-like portion is composed of or coated with a metal containing material.

7. (Previously presented) The substrate of Claim 6, wherein the metal is selected from: gold, copper, aluminum, platinum, silver, or alloys of such metals or combinations of such metals.

8. (Previously presented) The substrate of Claim 1, wherein the cellular internalization-promoting moieties are hydrolytic enzymes that facilitate degradation of extracellular matrix, wherein the hydrolytic enzymes are selected from polysaccharide-degrading enzymes, proteinases and lipid-degrading-enzymes.

9. (Previously presented) The substrate of Claim 8, wherein said hydrolytic enzyme is connected to the micronail through a biodegradable spacer molecule.

10. (Previously presented) The substrate of Claim 1, wherein the cellular internalization-promoting moieties are molecules that recognize plasma membrane components, wherein said molecules are selected from: ligands of plasma membrane receptors or receptor binding-parts of said ligands; receptors that recognize plasma membrane components; lectins that bind to plasma-membrane glycoproteins; antibodies that recognize plasma-membrane components or binding fragments thereof; integrins that recognize short linear amino acid sequences in ECM proteins; and a combination of two or more of the above.

11. (Previously presented) The substrate of Claim 1, wherein the cellular internalization-promoting moieties are molecules that recognize plasma components and bind to polysaccharides that are part of proteoglycans in the ECM plasma membrane.

12. (Previously presented) The substrate of Claim 1, further comprising molecules that promote adhesion of cells.

13. (Previously presented) The substrate of Claim 12, wherein the molecules that promote adhesion of cells are present on at least one of the following: the base rod-like portion of the micronail, and the region surrounding the base rod-like portion.

14. (Previously presented) The substrate of Claim 12, wherein said adhesion molecules are in the form of a charged monolayer.

15. (Previously presented) The substrate of Claim 14, wherein said charged monolayer is a positively charged monolayer of polylysine, or polyaniline and a like.

16. (Previously presented). The substrate of Claim 15, wherein said positively charged monolayer of polylysine or polyaniline is assembled on a polystyrenesulfonate layer, said polystyrenesulfonate layer comprising anion units connected through a linker to the micronail.

17. (Previously presented) The substrate according to Claim 1, adapted to form a cell-communicating part of an electrode.

18. (Previously presented) The substrate according to Claim 17, wherein the electrode is a gate electrode.

19. (Previously presented) The substrate according to Claim 17, wherein the base rod-like portion of the micronail is electrically isolated from its surrounding.

20. (Previously presented) The substrate according to Claim 17, wherein the micronail is electrically isolated from its surrounding.

21. (Previously presented) The substrate according to Claim 18, wherein the micronail is a conductive rod, which is an integral part of the polysilicon gate electrode, and is insulated from the surrounding by a thin insulating layer.

22. (Previously presented) The substrate according to Claim 18, in the form of an integrated structure manufactured by lithography and etching techniques.

23. (Previously presented) The substrate according to Claim 19, wherein the base rod-like portion of the micronail is made of tungsten, and is isolated from the surrounding by a layer of silicon nitrade.

24. (Previously presented) An electrode comprising the substrate of Claim 17.

25. (Previously presented) The electrode according to Claim 24 being a gate electrode.

26. (Previously presented) The electrode according to Claim 25 having a single micronail.

27. (Previously presented) The electrode according to Claim 25 having a cluster of micronails.

28. (Previously presented) The electrode according to Claim 27, wherein the size of the cluster is smaller than the size of the cell to be in communication with the electrode.

29. (Previously presented) The electrode according to Claim 24, wherein at least a region of said electrode is coated with a layer of immobilized recognition molecules that, in the

presence of cell-secreted components, catalyze a reaction that causes release of ions in a media surrounding said recognition molecule.

30. (Previously presented) The electrode according to Claim 29, being a gate electrode.

31. (Previously presented) The electrode according to Claim 30, wherein the distance between the immobilized recognition molecules and the surface of the coated gate is smaller than 15Å.

32. (Previously presented) The electrode according to Claim 29, wherein the immobilized recognition molecules are enzymes or peptides.

33. (Previously presented) The electrode according to Claim 32, wherein the immobilized recognition molecules catalyze said reaction in the presence of a cell-secreted component selected from acetylcholine, glutamate, GABA, serotonin, neurotransmitters and/or neuroendocrines, growth factors, or cytokines.

34. (Previously presented) The electrode according to Claim 33, wherein said immobilized recognition molecule is acetylcholine esterase.

35. (Previously presented) The electrode according to Claim 30, wherein said gate-electrode is an ion sensitive gate.

36. (Previously presented) The electrode according to Claim 35, wherein the ion-sensitive material is Aluminum Oxide ($A1_2O_3$), Silicon Nitride (Si_3N_4), Indium Tin Oxide ($In_3O_3Sn_2O_3$), Silicon Oxide (SiO_2) or Tantalum Oxide (Ta_2O_5).

37. (Previously presented) The electrode according to Claim 29, wherein the immobilized recognition molecules are immobilized via linker molecules that are covalently bound to at least one of the surface of the substrate and the recognition molecules.

38. (Previously presented) The electrode according to Claim 37, wherein said linker molecules are selected from conjugated or unconjugated aliphatic, aromatic or heteroaromatic molecules, having at least one functional group capable of covalently binding to said surface and at least one functional group capable of covalently binding to said recognition molecules.

39. (Previously presented) A device for the detection of cell secreting components comprising an electrode arrangement having at least one said electrode of Claim 29.

40. (Previously presented) A device for the detection of cell secreting components comprising at least one pair of source-drain electrodes and at least one said gate-electrode of Claim 31 forming together at least one Field Effect Transistor (FET).

41. (Previously presented) A device for electric communication with a cell comprising an electrode arrangement having at least one said electrode of Claim 24.

42. (Previously presented) A device for electrical communication with a cell comprising at least a pair of source-drain electrodes and at least one said gate electrode as defined in Claim 25, thereby defining together at least one Field Effect Transistor (FET).

43. (Previously presented) The device according to Claim 41, wherein the electrical communication with the cell is achieved by a property selected from:

(a) detecting the presence of currents, or current changes in cells;

(b) detecting field potential or field potential change in cells;

(c) providing a current to cells;

(d) providing field potential to cells; or

(e) a combination of two or more of (a) to (d).

44. (Previously presented) The substrate according to claim 1, wherein at least a region of the micronail is decorated with a material adapted to penetrate into a cytoplasm, so that the micronail is capable of being used as a micro-syringe delivering material either to the plasma membrane or intracellularly.

45. (Previously presented) The substrate according to claim 21, wherein the conductive rod is a poly-silicon rod.